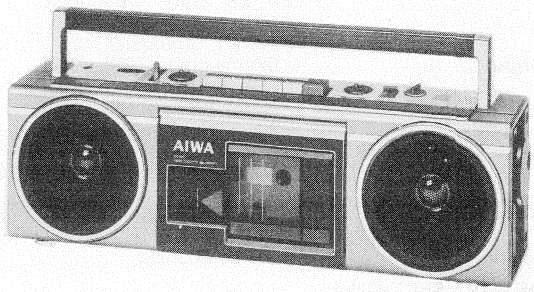
# AIWA®

S/M Code No. 84-001 W
DATE OF ISSUE 1/1984

# SERVICE MANUAL

## 4 BAND STEREO RADIO CASSETTE RECORDER

MODEL NO.
## CS-210

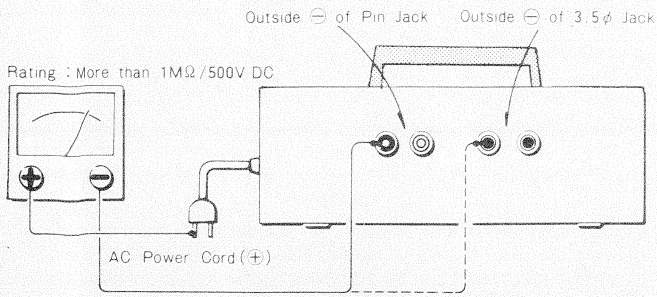



## TYPE. H, HB, HR, HJ, HJB, HJR, HUB, C, UB, E, EB, ER, K, KWR, G, ZB, ZWR, FJB

**Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of serivce.**

1. **No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.**
2. **No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.**
3. **When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.**
4. **The following matters shall be maintained as they are, when repairing.**
   1) Soldering of lead-wire ends
      * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
   2) Wiring and holding of lead-wires with wire-clips and binders
   3) Materials of lead-wires
      * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
   4) Location of all kinds of insulators
   5) Setting of voltage selector switch
      * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.
5. **After repaired, the insulation resistance or leakage current shall be measured with 500 ± 5V D.C and shall be not less than 1MΩ.**

Measuring Point




6. **General instructions for mechanism repair**
   1) Lubricants been stained the surfaces of transmitting portion of the belts, idlers, capstan and pinch roller shall be removed, because slippery and faulty tape travel shall be caused.
   2) When oiling, only one or two drops shall be applied so as not to run over and be dispersed. Note should be taken of the metal fitting for the capstan and rotating portions of the idlers and pinch roller, especially.
   3) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
   4) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, mulfunction and damage.

# SPECIFICATIONS

## ≪ GENERAL ≫

**Power source:** Batteries DC 9V (SUM-2 x 6)
H, HB, HR, HJ, HJB, HJR, HUB, FJB models
AC 110 ~ 120V/220 ~ 240V
Switchable 50/60 Hz
UB model
AC 120V/220 ~ 240V, 50/60 Hz
C model
AC 120V, 60 Hz
E, EB, ER, ZB, ZWR models
AC 110 ~ 120V/220 ~ 240V, 50/60 Hz
K, KWR, G models
AC 120V/240V, 50/60 Hz

**Speakers:** 100mmφ x 2

**Power consumption:**

| | |
|---|---|
| H, HB, HR, HJ, HJB, HJR, HUB, E, EB, ER, ZB, ZWR, FJB models | 14W |
| C, UB models | 12W |
| K, KWR, G models | 17W |

**Output:** 6W maximum (3W + 3W)
C, UB models
FTC Rule
1.6 watts per channel, Min.
RMS at 2.8 ohms, from 200 Hz to 10 kHz, with no more than 10% Total Harmonic Distortion

**Dimensions:** 445(W) x 147(H) x 90(D) mm
[17-5/8" x 6-3/8" x 5-1/2"]

**Weight:** 2.2 kg (4.9 lbs)

## ≪ RADIO SECTION ≫

**Circuit:** Superheterodyne

**Frequency range:** H, HB, HR, HJ, HJB, HJR, HUB, C, UB, G, FJB models

| | |
|---|---|
| FM | 87 ~ 109 MHz |
| $SW_2$ | 6.8 ~ 22.5 MHz |
| $SW_1$ | 2.1 ~ 7.3 MHz |
| MW | 517 ~ 1660 MHz |

E, EB, ER, K, KWR models

| | |
|---|---|
| FM | 87.4 ~ 108.3 MHz |
| SW | 5.8 ~ 18.5 MHz |
| MW | 517 ~ 1660 kHz |
| LW | 145 ~ 320 kHz |

**Intermediate frequency:** H, HB, HR, HJ, HJB, HJR, HUB, C, UB, G, FJB models

| | |
|---|---|
| FM | 10.7 ± 0.3 MHz |
| $SW_2$, $SW_1$, MW | 468 ± 3.5 kHz |

E, EB, ER, K, KWR, ZB, ZWR models

| | |
|---|---|
| FM | 10.7 ± 0.35 MHz |
| SW, MW, LW | 468 ± 3.5 kHz |

**Sensitivity:** H, HB, HR, HJ, HJB, HJR, HUB, C, UB, G, FJB models

| | | |
|---|---|---|
| (IHF, THD 3%) | FM | 20 ± 4 dB (at 88 MHz) |
| | | 20 ± 4 dB (at 100 MHz) |
| | | 20 ± 4 dB (at 108 MHz) |
| (S/N 10dB) | $SW_2$ | 40 ± 5 dB (at 7.0 MHz) |
| | | 29 ± 5 dB (at 14.0 MHz) |
| | | 19 ± 5 dB (at 22.0 MHz) |
| (S/N 10dB) | $SW_1$ | 46 ± 4 dB (at 2.3 MHz) |
| | | 47 ± 4 dB (at 4.0 MHz) |
| | | 49 ± 4 dB (at 7.0 MHz) |
| (S/N 10dB) | MW | 48 ± 4 dB (at 600 kHz) |
| | | 44 ± 4 dB (at 1000 kHz) |
| | | 44 ± 4 dB (at 1400 kHz) |

E, EB, ER, K, KWR, ZB, ZWR models

| | | |
|---|---|---|
| (IHF, THD 3%) | FM | 20 ± 4 dB (at 88 MHz) |
| | | 20 ± 4 dB (at 100 MHz) |
| | | 20 ± 4 dB (at 108 MHz) |
| (S/N 10dB) | SW | Less than 43 dB (at 5.9 MHz) |
| | | Less than 35 dB (at 12 MHz) |
| | | Less than 24 dB (at 18 MHz) |
| (S/N 10dB) | MW | 48 ± 4 dB (at 600 kHz) |
| | | 44 ± 4 dB (at 1000, 1400 kHz) |
| (S/N 10dB) | LW | Less than 63 dB (at 150 kHz) |
| | | Less than 61 dB (at 200 kHz) |
| | | Less than 64 dB (at 300 kHz) |

**Image rejection:** H, HB, HR, HJ, HJB, HJR, HUB, C, UB, G, FJB models

| | |
|---|---|
| FM | 24 ± 5 dB (at 108.0 MHz) |
| $SW_2$ | 7 ± 3 dB (at 22.0 MHz) |
| $SW_1$ | 18 ± 3 dB (at 7.0 MHz) |
| MW | 44 ± 5 dB (at 1400 kHz) |

E, EB, ER, K, KWR, ZB, ZWR models

| | |
|---|---|
| FM | 24 ± 5 dB (at 108.0 MHz) |
| SW | 10 ± 3 dB (at 18 MHz) |
| MW | 35 ± 5 dB (at 1400 kHz) |
| LW | 40 ± 5 dB (at 300 kHz) |

**IF rejection:** H, HB, HR, HJ, HJB, HJR, HUB, C, UB, G, FJB models

| | |
|---|---|
| FM | 80 ± 10 dB (at 88.0 MHz) |
| MW | 57 ± 7 dB (at 600 kHz) |

E, EB, ER, K, KWR, ZB, ZWR models

| | |
|---|---|
| FM | 80 ± 10 dB (at 88.0 MHz) |
| MW | 57 ± 7 dB (at 600 kHz) |

**AM suppression:** 45 ± 10 dB (at 100 MHz)

**FM stereo separation:** 21 ± 3 dB (at 1 kHz)

**Antenna:** H, HB, HR, HJ, HJB, HJR, HUB, C, UB, G, FJB models

| | |
|---|---|
| FM, $SW_2$ | Whip antenna |
| $SW_1$, MW | Ferrite bar antenna |

E, EB, ER, K, KWR, ZB, ZWR models

| | |
|---|---|
| FM, SW | Whip antenna |
| MW, LW | Ferrite bar antenna |

## ≪ TAPE RECORDER SECTION ≫

**Track type:** Compact cassette 4 track 2 channels

**Tape speed:** 4.8 cm/s ± 3% (1-7/8 ips ± 3%)

**Recording system:** AC bias

**Erasing system:** DC erase

**Record bias frequency:** 60 kHz

**Erasing ratio:** More than 55 dB

**Separation:** More than 39 dB (at REC/PB)

**Distortion:** Less than 3% (at PB)
Less than 5% (at REC/PB)

**Signal noise ratio:** More than 45/44 dB (at PB, DC/AC)
More than 35/34 dB (at REC/PB, DC/AC)

**Noise level:** 35 ± 10 mV (DC, AC, MIN)

**Frequency response:** 40 ~ 12,500 Hz (NORMAL)

**Head:** REC/PB head hard permalloy head
Erase head permalloy head

**Motor:** DC electric governer

**Wow and Flutter:** 0.2% (WRMS)

**Auto stop:** Mechanical full auto stop system

**Pinch roller pressure:** 430 ± 50 g (4.22 ± 0.49 N)

**Take up torque:** $40\ ^{+20}_{-10}$ g-cm ($0.39\ ^{+0.2}_{-0.098}$ mN·m)

**FF & rewind torque:** $110\ ^{+40}_{-30}$ g-cm ($1.078\ ^{+0.392}_{-0.294}$ mN·m)

**FF & rewind time:** 105 ± 10s. (C-60)

**Input terminals:** AUX 3.5φ

**Input sensitivity/ Impedance:** AUX 300 mV/220 kΩ

**Output terminal:** PHONES 3.5φ

- Specifications and external appearance are subject to change without due to product improvement.

# DISASSEMBLY INSTRUCTIONS

1. Removing Front Cabinet

1) Remove the 7 screws. (See Figure－1)

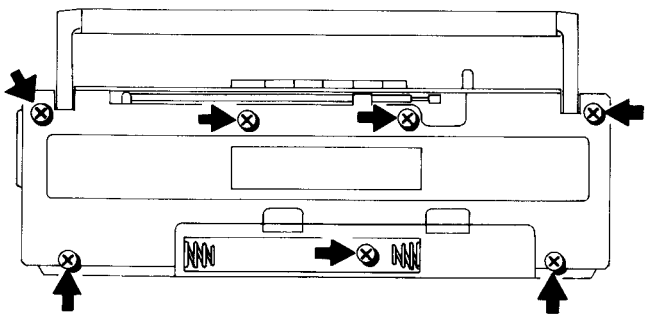


Fig. 1

2. Removing Mechanism

1) Remove the 2 red screws and 3 connectors. (See Figure－2)

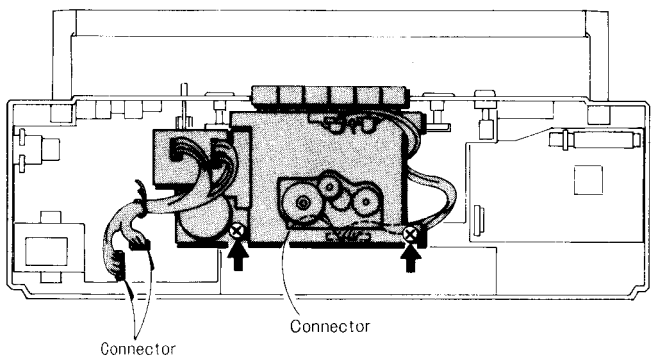



Fig. 2

3. Removing Main Circuit Board

1) Remove the 7 screws and 3 knobs. (See Figure－3)

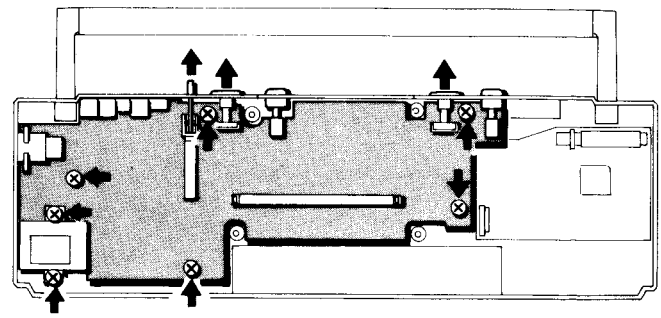


Fig. 3

4. Removing Tuner Circuit Board

1) Remove the 4 screws. (See Figure－4)

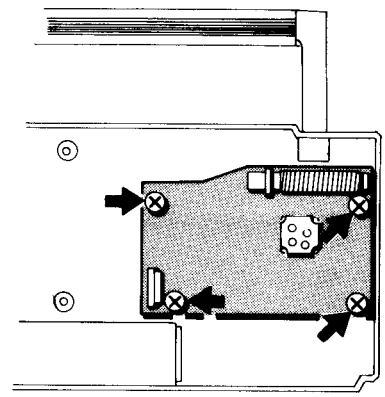
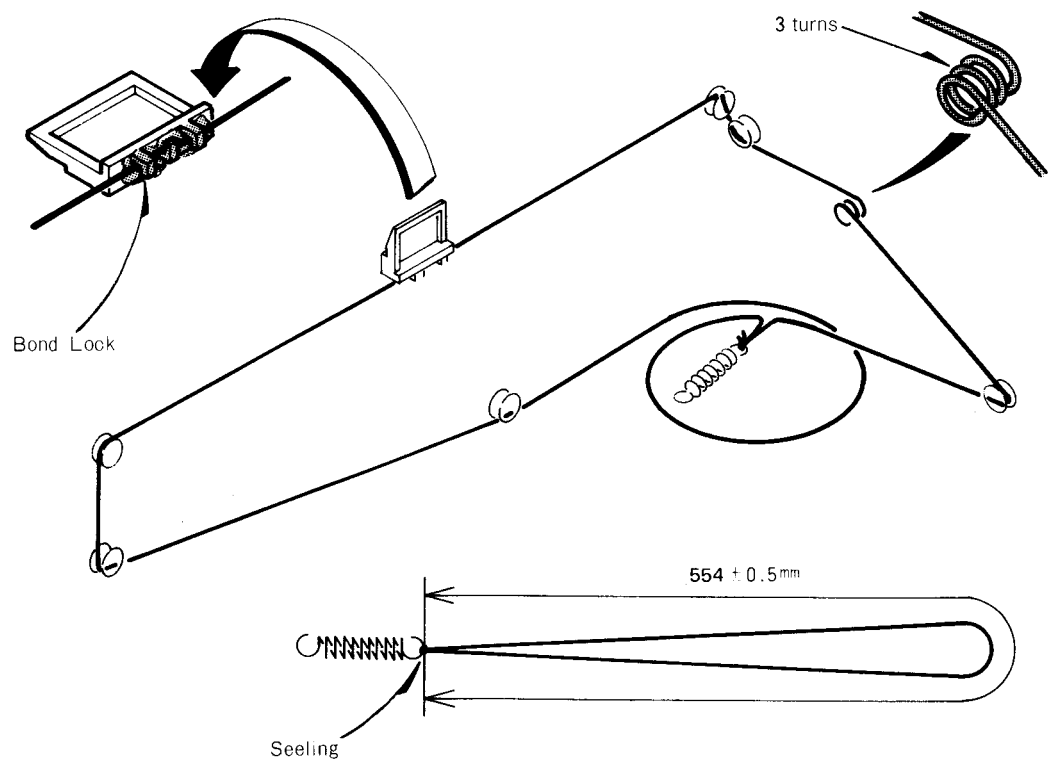
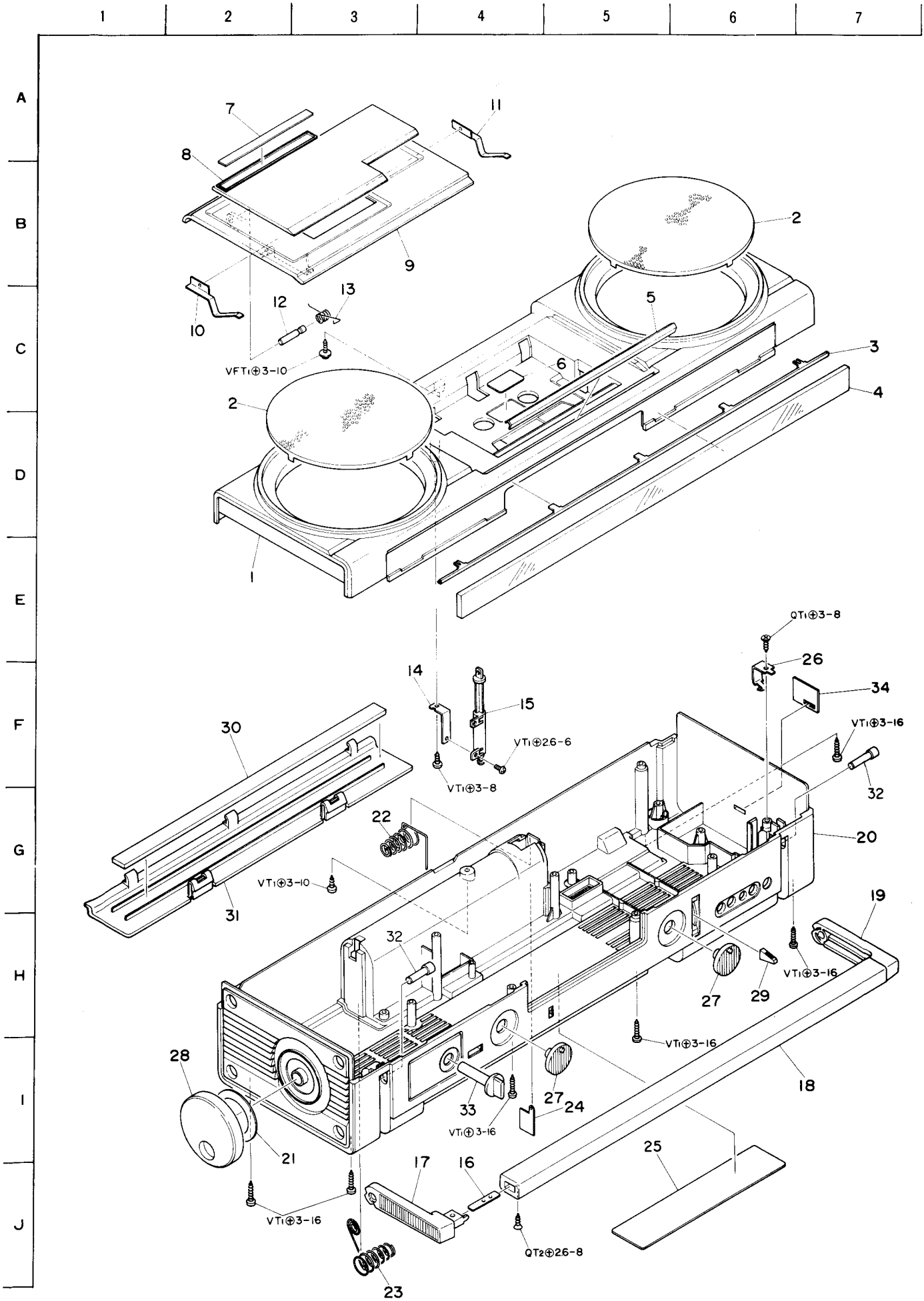


Fig. 4

# DIAL CORD STRINGING



# EXPLODED VIEW-1



## ELECTRICAL MAIN PARTS LIST

"★★★" shows unavailable Repair Part.

| Symbol No. | Part No. | Description | Remark |
|---|---|---|---|
| **≪TUNER CIRCUIT BOARD SECTION≫** | | | |
| PCB-A | 81-516-651-21 | Tuner circuit board | |
| IC1 | 87-027-912-01 | IC, μPC1255C | |
| IC2 | 87-027-913-01 | IC, TA7640AP | |
| IC3 | 87-027-867-01 | IC, TA7343P | |
| Q1, 3 | 89-318-155-01 | Transistor, 2SC1815 (GR) | |
| Q4 | 89-110-155-01 | Transistor, 2SA1015 (GR) | |
| Q5 | 89-502-414-01 | FET, 2SK241 (Y) | |
| D1 | 87-017-004-01 | Diode, SD-117 | |
| L1 | 87-006-062-01 | FM RF coil | |
| L2 | 82-584-629-01 | FM OSC coil (H, HB, HR, HJ HJB, HJR, HUB, C, UB, G models only) | |
| L2 | 87-007-138-01 | FM OSC coil (FJB model only) | |
| L6 | 87-006-063-01 | SW2 antenna coil | |
| L7, 8 | 81-518-650-01 | SW1, MW bar antenna coil | |
| L9 | 87-007-125-01 | SW2 OSC coil | |
| L10 | 87-007-124-01 | SW1 OSC coil | |
| L11 | 87-007-123-01 | MW OSC coil | |
| L12 | 87-005-151-01 | Choke coil, 2.2μH | |
| L13 | 87-003-078-01 | Choke coil, 0.22μH | |
| VC1~4<br>TC1~4 | 87-011-138-11 | PVC | |
| TC5, 7 | 87-011-146-01 | Trimmer capacitor, 7pF | |
| TC6, 8 | 87-011-147-01 | Trimmer capacitor, 11pF | |
| CF1, 2 | 87-008-261-01 | Ceramic filter, 10.7MA5-A | |
| CFT1 | 87-008-265-11 | Cermaic filter, 468PS | |
| IFT1 | 87-008-258-01 | FM IFT | |
| IFT2 | 87-008-259-01 | FM IFT (Quad) PS | |
| IFT3 | 87-008-256-01 | AM IFT (DET) PS | |
| BPF1 | 87-030-082-01 | Band pass filter | |
| SFR1 | 87-021-777-01 | Semi-fixed resistor, 4.7kΩ-B | |
| S11 | 87-031-810-01 | Rotary switch (BAND SELECTOR) | |
| | 87-032-966-01 | Connector, 6P | ★★★ |
| | 87-033-144-01 | Pin, 1φ | ★★★ |
| | | < **Resistor** > | |
| ⚠R25 | 87-029-010-01 | 10Ω 1/4W Fuse resistor | |
| | | < **Capacitors** > | |
| C33 | 87-015-697-01 | 3.3μF 50V | |
| C35 | 87-014-057-81 | 1000pF PP | |
| C39, 40 | 87-015-695-01 | 1μF 50V Electrolytic | |
| C58 | 87-014-045-81 | 330pF PP | |
| **≪MAIN CIRCUIT BOARD SECTION≫** | | | |
| PCB-B | * | Main circuit board | |
| IC1 | 87-027-951-01 | IC, TA7668AP | |
| IC2 | 87-020-122-01 | IC, μPC1278H | |
| Q1 | 89-404-713-01 | Transistor, 2SD471 | |
| Q2, 101, 201 | 89-309-455-01 | Transistor, 2SC945L (Q) | |
| Q102, 202 | 89-320-011-01 | Transistor, 2SC2001K | |
| D1 | 88-052-188-01 | Diode, 1S188FM | |
| D2 | 87-027-097-01 | Diode, 1S1555 | |
| D3 | 87-027-320-01 | Diode, HZ7C2 | |
| D4, 5, 6, 7 | 82-596-799-01 | Diode, 1N4002 | |
| L1 | 81-516-613-01 | Bias, OSC coil | |
| ECM | 87-041-038-01 | ECM | |
| VR101, 201 | 81-527-614-01 | Volume, 20kΩ-A (VOLUME) | |
| VR102, 202 | 81-527-615-01 | Volume, 50kΩ-A (TONE) | |
| J1, 2 | 87-049-336-01 | Jack, 3.5φ (AUX L+R, L) | |
| J3 | 87-049-333-01 | Jack, 3.5φ (PHONES) | |
| S1-1~1-6 | 81-527-611-01 | Lever switch (FUNCTION) | |
| S2-1~2-9 | 81-527-613-01 | Slide switch (REC/PB) | |
| S3 | 87-031-761-01 | Push switch | |
| PIN1 | 87-049-274-01 | Pin, 4P | |
| PIN2 | 87-049-273-01 | Pin, 3P | |
| PIN3 | 87-049-278-01 | Pin, 8P | |
| PIN4 | 87-049-272-01 | Pin, 2P | |
| ⚠T1 | 81-527-609-01 | Power transformer (H,HB,HR, HJ, HJB, HJR, HUB, C, UB, FJB models only) | |
| ⚠T1 | 81-527-609-01 | Power transformer (G model only) | |
| ⚠J4 | 87-032-954-01 | AC jack (H, HB, HR, HJ, HJB, HJR, HUB, C, UB, FJB models only) | |
| ⚠J4 | 87-032-977-01 | AC jack (G model only) | |
| ⚠S4 | 87-031-780-01 | Slide switch (VOLTAGE SELECTOR) (H, HB, HR, HJ, HJB, HJR, HUB, UB, G, FJB models only) | |
| | 81-527-618-01 | Heat sink | ★★★ |
| | | < **Resistor** > | |
| R15, 118, 218 | 87-025-266-01 | 4.7Ω 1/4W Nonflammable | |
| | | < **Capacitors** > | |
| C17 | 87-014-057-81 | 1000pF PP | |
| C111, 211 | 87-018-046-01 | 4700pF | |
| C117, 217 | 87-018-044-01 | 1000pF | |
| **≪RELAY CIRCIUT BOARD SECTION≫** | | | |
| PCB-C | * | Relay circuit board | |
| CON2 | 89-051-039-11 | Connector ass'y, 3P | |
| | | < **Resistor** > | |
| ⚠R61 | 87-029-108-01 | 1Ω 1/2W Fuse resistor | |
| **≪MISCELLANEOUS≫** | | | |
| RPH | 87-046-239-01 | REC/PB head | |
| EH | 87-046-133-01 | Erase head | |
| M1 | 87-045-215-01 | Motor, EG-500AD9F | |
| SP1, 2 | 81-518-652-01 | Speaker | |
| S5 | 81-504-252-01 | Leaf switch (POWER) | |
| S6 | 87-031-548-01 | Leaf switch (MOTOR) | |
| CON1 | 89-051-040-01 | Connector ass'y, 4P | |
| CON3 | 89-051-042-01 | Connector ass'y, 8P | |
| CON4 | 89-051-038-01 | Connector ass'y, 2P | |

⚠ **Safety component symbol**

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

### Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

**Combination circuit board 81-527-796-11**
**(H, HB, HR, HJ, HJB, HJR, HUB, G, FJB models only)**
**PCB-B 81-527-795-11**
**PCB-C 81-527-794-11**

**Combination circuit board 81-527-604-11**
**(UB, C models only)**
**PCB-B 81-527-605-11**
**PCB-C 81-527-606-01**

• **Ceramic capacitor**
**87-018-□□□-01**

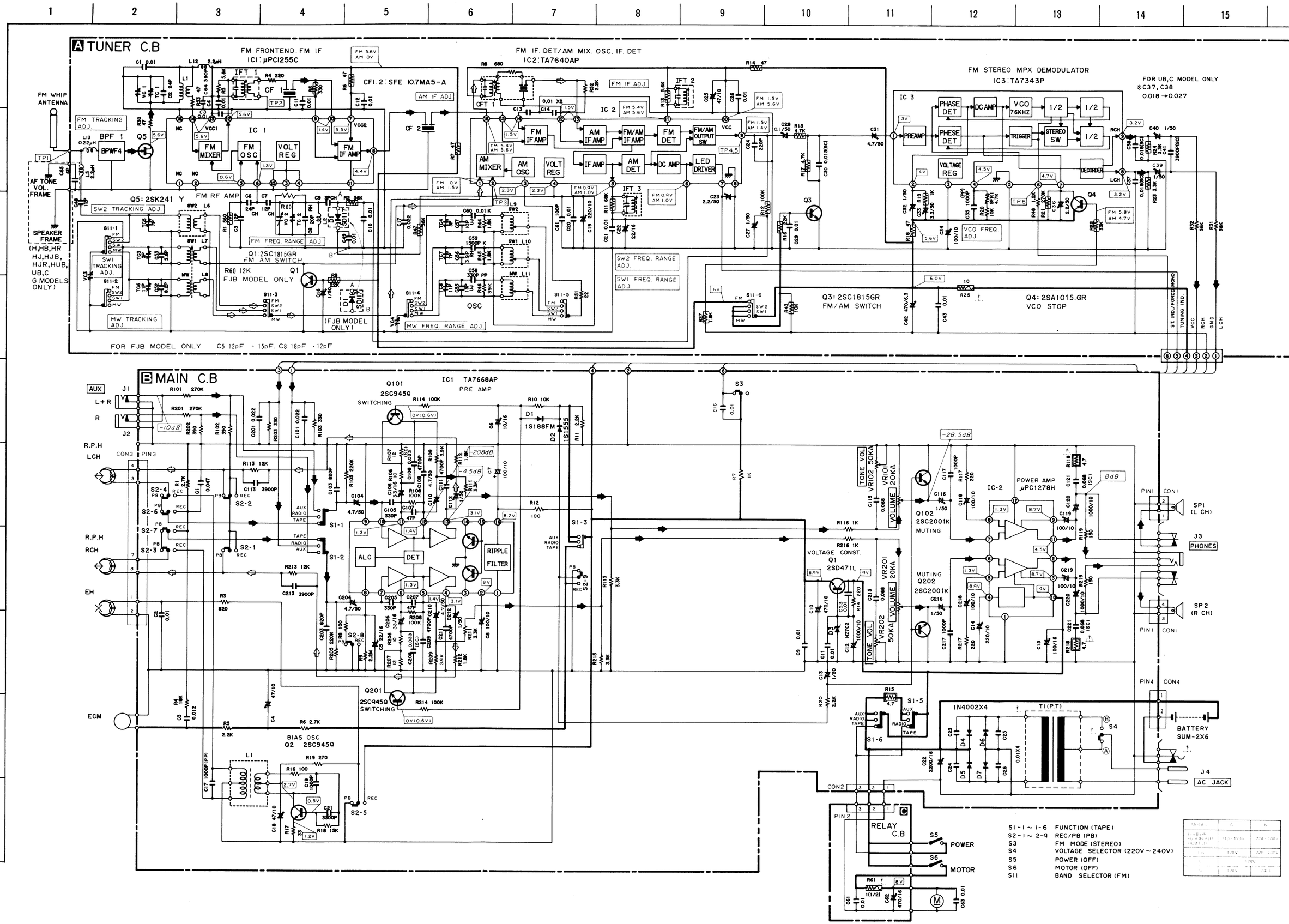
| Capacitor | Part No. |
|---|---|
| 3.9PF RH | 064 |
| 5.6PF SL | 006 |
| 8.2PF SL | 008 |
| 10PF UJ | 080 |
| 12PF SL | 010 |
| 12PF CH | 055 |
| 15PF UJ | 082 |
| 22PF SL | 016 |
| 100PF | 032 |
| 220PF | 036 |
| 1,500PF | 094 |
| 0.01μF | 047 |
| 0.01μF K | 095 |

**0.022μF 87-012-105-01**

☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ **MEMO** ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆

CS-210 H,HB,HR,HJ,HJB HUB,C,UB,G,FJB
CS-210 H,HB,HR,HJ,HJB HUB,C,UB,G,FJB

## SCHEMATIC DIAGRAM



CS-210 H,HB,HR,HJ,HJB HUB,C,UB,G,FJB

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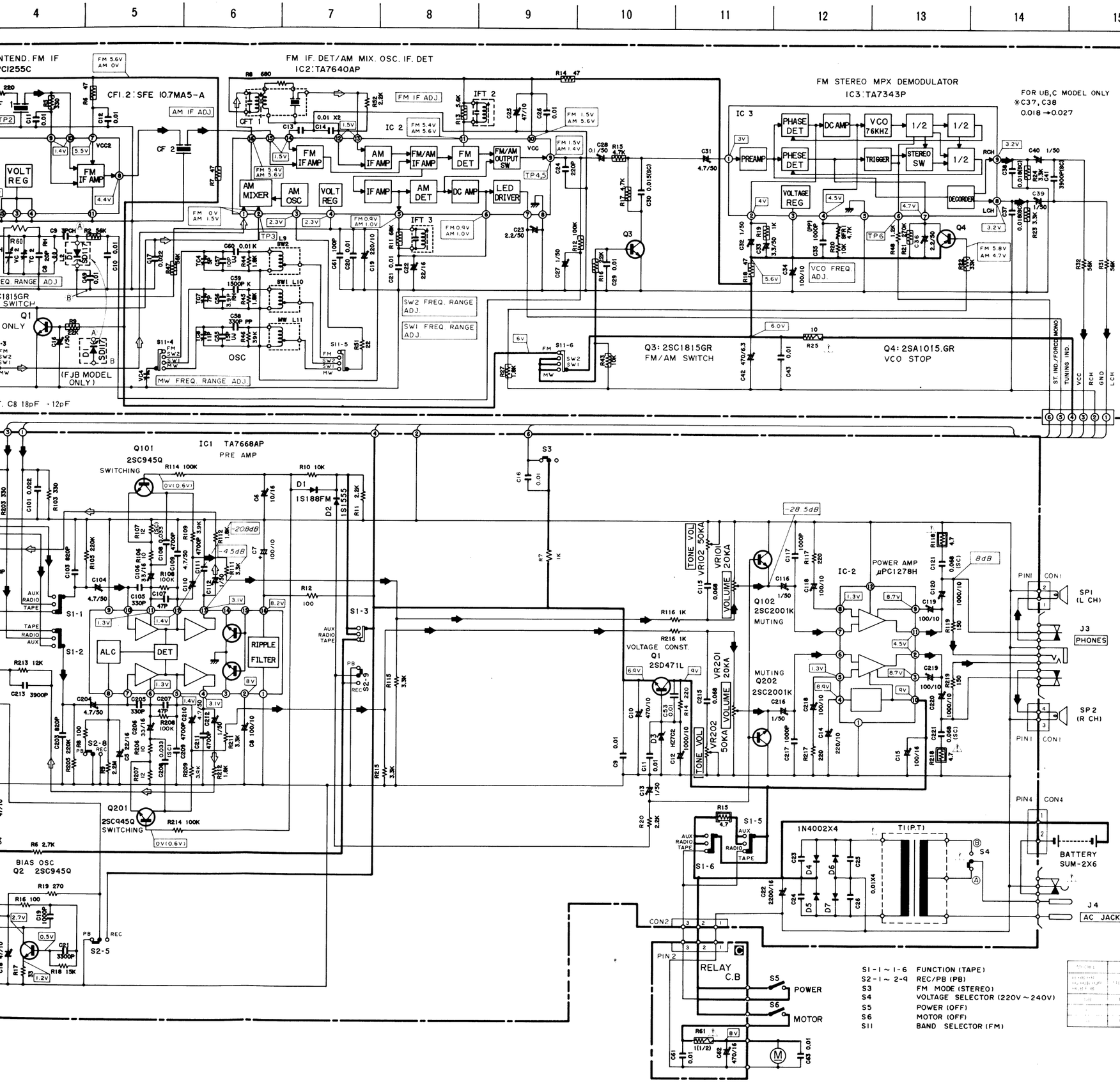


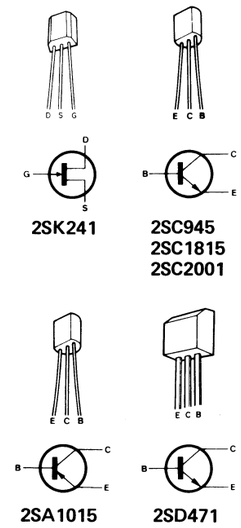

| | | |
|---|---|---|
| S1-1 ~ 1-6 | FUNCTION (TAPE) | |
| S2-1 ~ 2-9 | REC/PB (PB) | |
| S3 | FM MODE (STEREO) | |
| S4 | VOLTAGE SELECTOR (220V ~ 240V) | |
| S5 | POWER (OFF) | |
| S6 | MOTOR (OFF) | |
| S11 | BAND SELECTOR (FM) | |

**NOTES:**

1) ■ B (+) power supply
2) ➡ Signal path
   ⇨ Rec path, AM signal path
3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
   But ( ) is with AM reception or recording.
   An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
4) Resistors with no designation have a rated power of 1/8W and a tolerance of ±5%.
5) Capacitors with no designation have a dielectric strength of less than 50WV.
6) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
7) Ceramic capacitor symbols:
   - For temperature compensation (SL)
   - High dielectric constant system (YY)
   - High dielectric constant system (YW, YP, YZ)
   - Semiconductor ceramic
   - For temperature compensation (SH)
8) Explanation of symbols
   - (M) Mylar capacitor
   - (A) Aluminum solid capacitor
   - (PP) Polypropylene film capacitor
   - (BP) Bi-polarized capacitor
   - Fuse resistor
   - Nonflammable resistor

⚠ Safety component symbol
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications.
Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.



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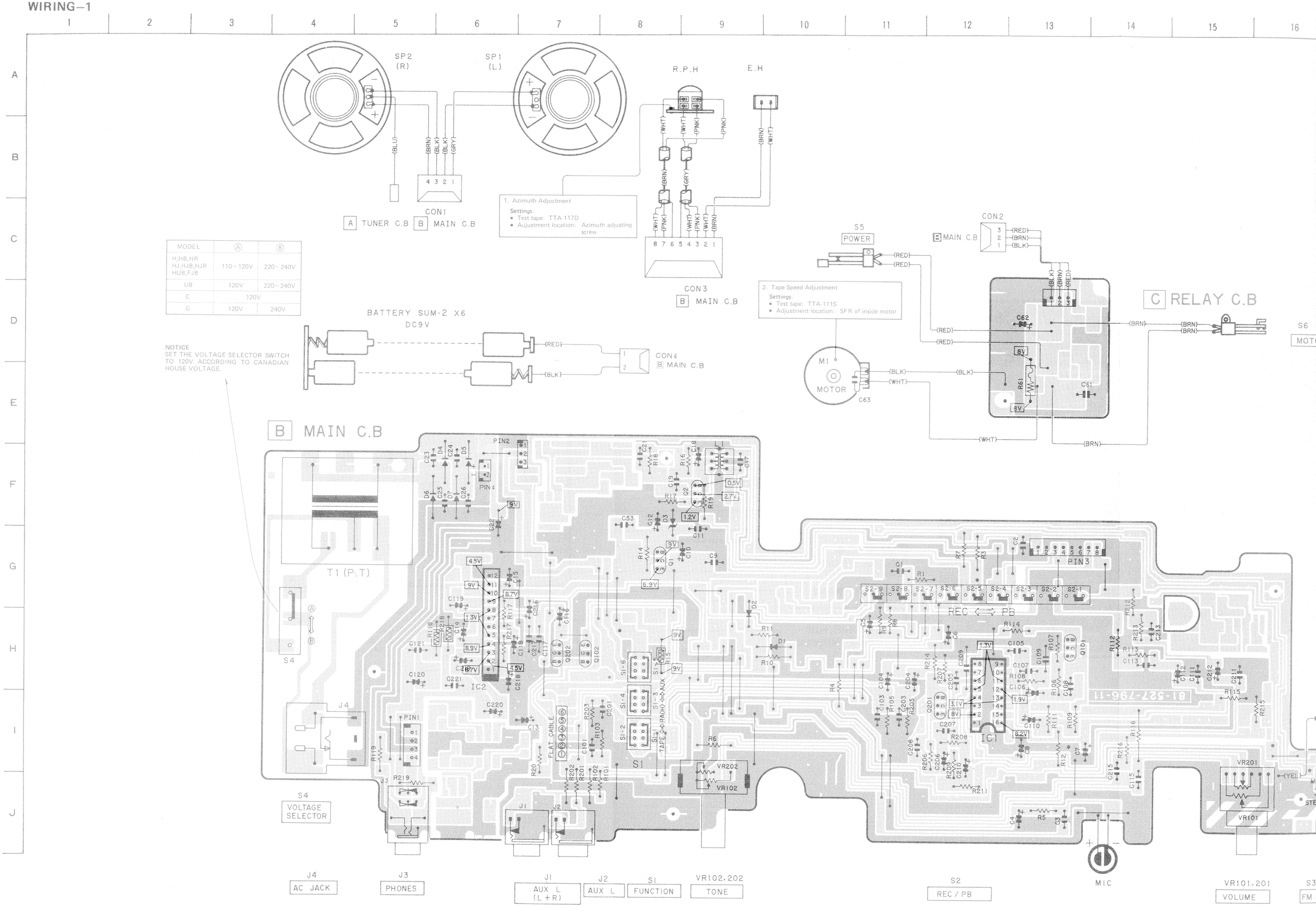
NOTES (1) Earth pattern Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

# WIRING–1



**NOTES** (1) Earth pattern Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

SP2 (R) SP1 (L)

(BLU) (BRN) (BLK) (BLK) (GRY)

4 3 2 1

CON1

A TUNER C.B B MAIN C.B

R.P.H E.H

(WHT) (WHT) (PNK) (PNK) (BRN) (GRY) (WHT) (PNK) (WHT) (PNK) (WHT) (BRN) (BRN) (WHT)

8 7 6 5 4 3 2 1

CON3

B MAIN C.B

1. Azimuth Adjustment
Settings:
- Test tape: TTA-117D
- Adjustment location: Azimuth adjusting screw

| | Ⓑ |
|---|---|
| | 220~240V |
| | 220~240V |
| 0V | |
| | 240V |

OR SWITCH CANADIAN

BATTERY SUM-2 X6
DC9V

(RED) (BLK)

1 2

CON4
B MAIN C.B

S5
POWER

(RED) (RED)

CON2
B MAIN C.B
3 2 1
(RED) (BRN) (BLK)

2. Tape Speed Adjustment
Settings:
- Test tape: TTA-111S
- Adjustment location: SFR of inside motor

M1
MOTOR
C63

(BLK) (WHT) (BLK) (WHT)

(BLK) (BRN) (RED)
1 2 3

C62 8V R61 C61 3V

(RED) (RED)

C RELAY C.B

(BRN) (BRN) (BRN)

S6
MOTOR

(WHT) (BRN)

B MAIN C.B

PIN2 PIN4 9V C22 C23 D4 C24 D5 D6 C25 D7 C26

T1 (P.T)

S4

J4 PIN1 J3 R219

S4
VOLTAGE SELECTOR

4.5V 9V 8.7V 1.3V 6.9V 4.5V

C119 C121 C120 C221 IC2 C220 C13 R119 R118 R218 C14 C15 R117 C216 C116 C118 C217 C117 C218 Q202 Q102

C21 R18 C18 L1 C17 R16 C19 Q2 0.5V R19 2.7V R17 C12 D3 1.2V C11 C53 C10 9V R14 Q1 6.9V C9

D2 R11 D1 R10 R4 R6 VR202 VR102

SI-6 SI-5 SI-4 SI-3 SI-2 SI-1 S1
TAPE ⇔ RADIO ⇔ AUX

FLAT CABLE

R203 R103 C201 C101 R202 R201 R102 R101 R20

J1 J2

C1 R1 R7 R3 C2 PIN3

S2-9 S2-8 S2-7 S2-6 S2-5 S2-4 S2-3 S2-2 S2-1

REC ⇔ PB

C5 R9 R8 C6 R114 C105 C209 C107 R108 C106 C110 R214 R207 C205 C109 R107 Q101 R112 R212 R213 C213 R113 C113 C112 C111 C212 C211 R115 R215

1.3V 3.1V 8V 1.9V 6.2V IC1 Q201

C104 C103 R105 C204 C203 R205 C207 R208 C208 R206 C206 R209 C210 R211 R111 R109 R12 C7 R216 R116 C215 C115 C4 R5 C3

81-527-796-11

TO EXTANT PIN ( A TUNER C.B)

VR201 (YEL) C16 MONO STEREO S3 VR101

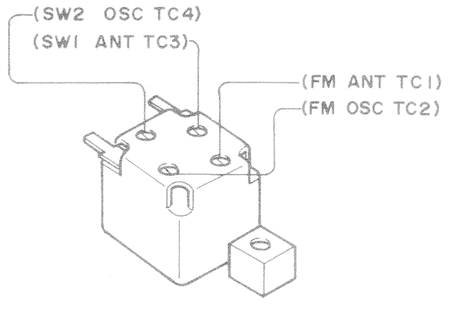
MIC

J4 AC JACK | J3 PHONES | J1 AUX L (L+R) | J2 AUX L | SI FUNCTION | VR102.202 TONE | S2 REC / PB | VR101.201 VOLUME | S3 FM MODE

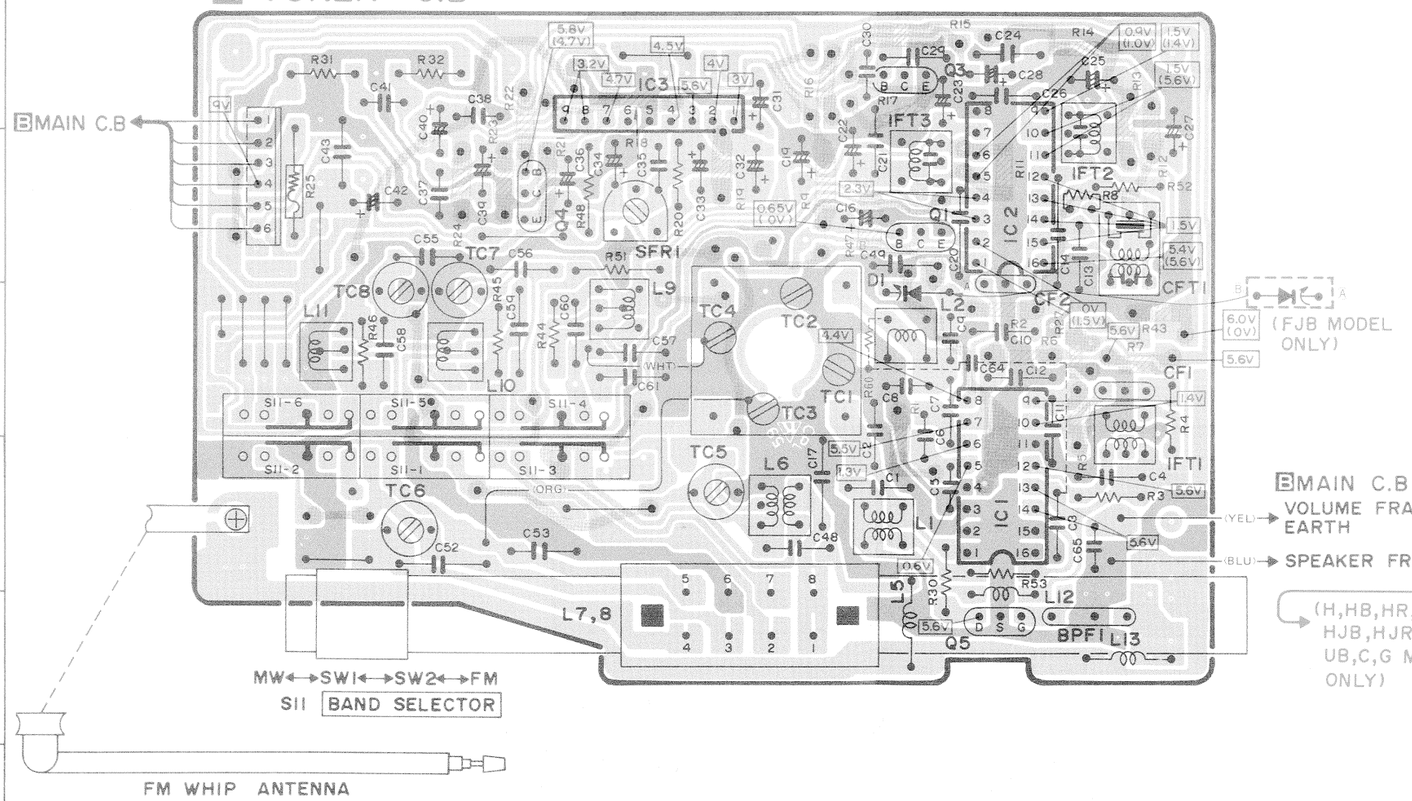
NOTES (1) Earth pattern Printed resistor pattern Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. But ( ) is with AM reception.

CS-210 H,HB,HR,HJ,HJB HUB,C,UB,G,FJB CS-210 H,HB,HR,HJ,HJB HUB,C,UB,G,FJB

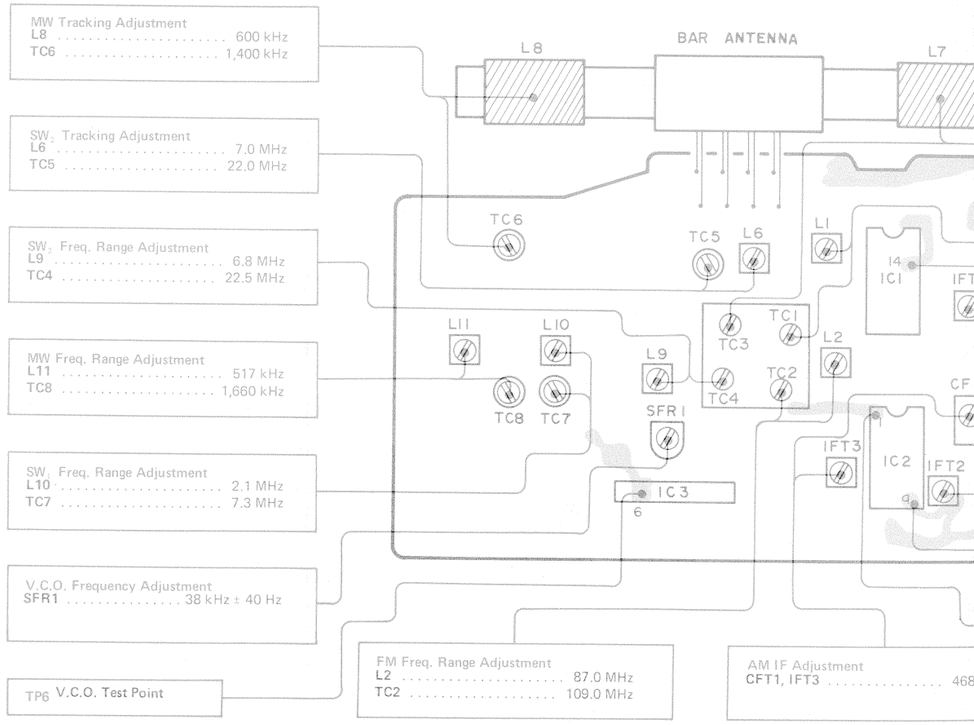
## WIRING–2



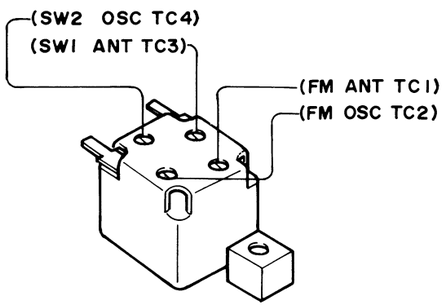

## A TUNER C.B



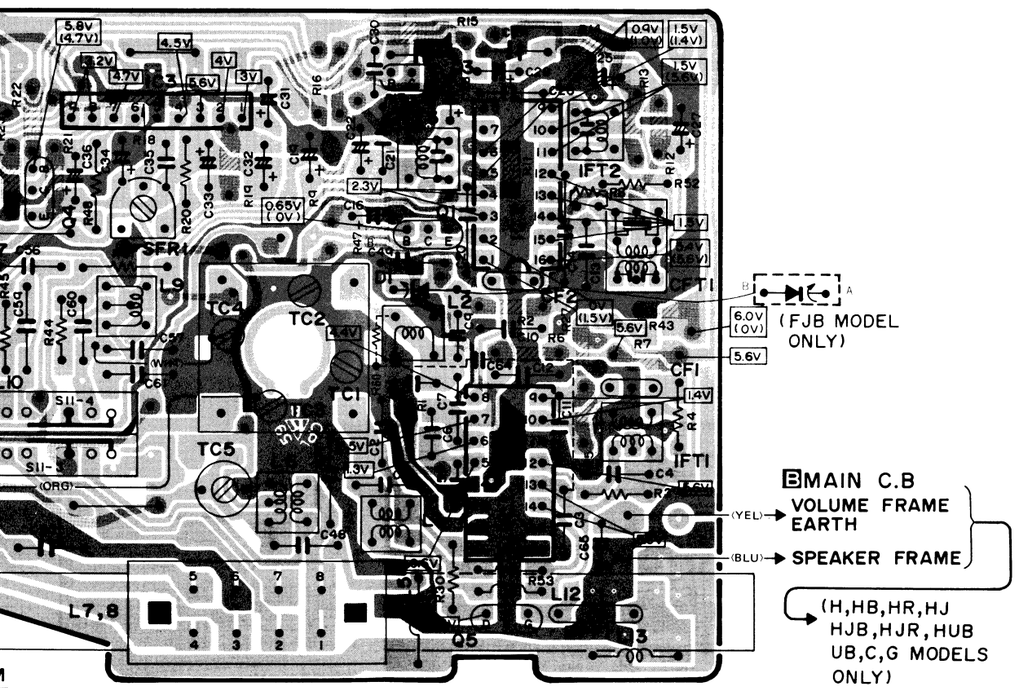

## ADJUSTMENT

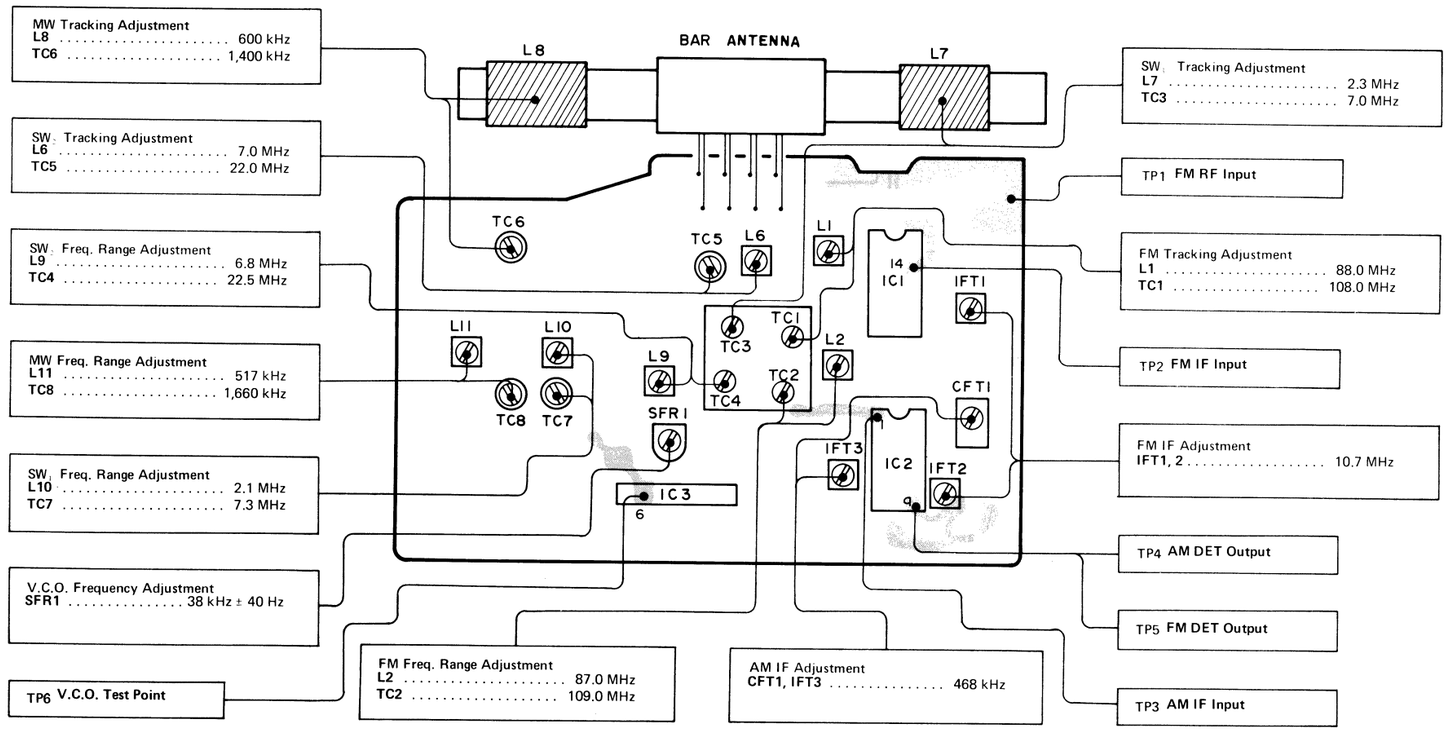


NOTES (1) Earth pattern Printed resistor pattern Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
But ( ) is with AM reception.




## ADJUSTMENT



# PARTS LIST

■ [S]=Silver [R]=Red [B]=Black [WR]=Wine Red
■ ※mark in this part list shows exclusive part.
■ "★★★" shows unavailable Repair Part.

## MECHANICAL PARTS LIST

| Ref. No. | Part No. | Part No. Changed to | Description | Common Model | Q'ty | Remark |
|---|---|---|---|---|---|---|
| 1-1 | 81-527-001-21 | | Cabinet. Front [S] (H. HJ. C. E. K. G models only) | ※ | 1 | |
| | 81-527-048-01 | | Cabinet. Front [R] (H. HJ. E models only) | ※ | 1 | |
| | 81-518-059-01 | | Cabinet. Front [B] (H. HJ. HU. U. E. Z. FJ models only) | ※ | 1 | |
| | 81-527-064-01 | | Cabinet. Front [WR] (K. Z models only) | ※ | 1 | |
| 1-2 | 81-518-004-11 | | Grille. Speaker | CS-W330 | 2 | |
| 1-3 | 81-527-008-11 | | Plate A | ※ | 1 | |
| 1-4 | 81-527-024-11 | | Window. Dial (H. HJ. HU. C. U. G models only) | ※ | 1 | |
| | 81-527-030-01 | | Window. Dial (E. K. Z models only) | ※ | 1 | |
| | 81-527-031-01 | | Window. Dial (FJ model only) | ※ | 1 | |
| 1-5 | 81-527-009-01 | | Plate B | ※ | 1 | |
| 1-6 | 81-516-026-01 | | Label. Tape indicator | CS-250 | 1 | |
| 1-7 | 81-527-045-01 | | Plate. Cassette | ※ | 1 | |
| 1-8 | 81-527-004-01 | | Window. Cassette | ※ | 1 | |
| 1-9 | 81-527-003-11 | | Box. Cassette | ※ | 1 | |
| 1-10 | 81-518-236-01 | | P-spring. R | CS-W330 | 1 | |
| 1-11 | 81-518-237-01 | | P-spring. L | CS-W330 | 1 | |
| 1-12 | 81-527-218-01 | | Shaft. Cassette box | ※ | 1 | ★★★ |
| 1-13 | 81-527-216-11 | | T-spring. Cassette box | ※ | 1 | |
| 1-14 | 81-518-248-21 | | Holder. Air-damp | CS-W330 | 1 | ★★★ |
| 1-15 | 81-504-580-01 | | Air-damp ass'y | CS-200 | 1 | |
| 1-16 | 81-504-527-11 | | Plate. Nut | CS-200 | 2 | ★★★ |
| 1-17 | 81-527-042-01 | | Bracket R. Handle | ※ | 1 | |
| 1-18 | 81-527-010-01 | | Handle. Grip [S] (H. HJ. C. E. K. G models only) | ※ | 1 | |
| | 81-527-051-01 | | Handle. Grip [R] (H. HJ. E models only) | ※ | 1 | |
| | 81-527-062-01 | | Handle. Grip [B] (H. HJ. HU. U. E. Z. FJ models only) | ※ | 1 | |
| | 81-527-067-01 | | Handle. Grip [WR] (K. Z models only) | ※ | 1 | |
| 1-19 | 81-527-041-01 | | Bracket L. Handle | ※ | 1 | |
| 1-20 | 81-527-023-21 | | Cabinet. Rear [S] (H. HJ. C models only) | ※ | 1 | |
| | 81-527-032-21 | | Cabinet. Rear [S] (E. K. Z models only) | ※ | 1 | |
| | 81-527-057-11 | | Cabinet. Rear [R] (H. HJ models only) | ※ | 1 | |
| | 81-527-058-11 | | Cabinet. Rear [R] (E model only) | ※ | 1 | |
| | 81-527-060-01 | | Cabinet. Rear [B] (H. HJ. HU. U. FJ models only) | ※ | 1 | |
| | 81-527-063-01 | | Cabinet. Rear [B] (E. Z models only) | ※ | 1 | |
| | 81-527-065-01 | | Cabinet. Rear [WR] (K. Z models only) | ※ | 1 | |
| 1-21 | 81-518-233-01 | | Slider knob | CS-W330 | 1 | |
| 1-22 | 81-527-221-01 | | C-spring. Battery | ※ | 1 | |
| 1-23 | 81-527-215-01 | | C-spring. Battery P | ※ | 1 | |
| 1-24 | 81-038-032-01 | | Terminal plate. Battery | | 1 | |
| 1-25 | 81-527-022-01 | | Name plate. Spec. (H model only) | ※ | 1 | ★★★ |
| | 81-527-043-01 | | Name plate. Spec. (HJ model only) | ※ | 1 | ★★★ |
| | 81-527-068-01 | | Name plate. Spec. (HU model only) | ※ | 1 | ★★★ |
| | 81-527-034-01 | | Name plate. Spec. (C model only) | ※ | 1 | ★★★ |
| | 81-527-033-01 | | Name plate. Spec. (U model only) | ※ | 1 | ★★★ |
| | 81-527-036-01 | | Name plate. Spec. (E model only) | ※ | 1 | ★★★ |
| | 81-527-037-01 | | Name plate. Spec. (K model only) | ※ | 1 | ★★★ |
| | 81-527-035-01 | | Name plate. Spec. (G model only) | ※ | 1 | ★★★ |
| | 81-527-038-01 | | Name plate. Spec. (Z model only) | ※ | 1 | ★★★ |
| | 81-527-039-01 | | Name plate. Spec. (FJ model only) | ※ | 1 | ★★★ |
| 1-26 | 81-504-583-21 | | P-spring. Handle | CS-200 | 1 | |
| 1-27 | 81-527-047-01 | | Knob. Volume | ※ | 2 | |
| 1-28 | 81-527-014-01 | | Knob. Tuning | ※ | 1 | |
| 1-29 | 81-527-044-01 | | Knob. Toggle | ※ | 2 | |

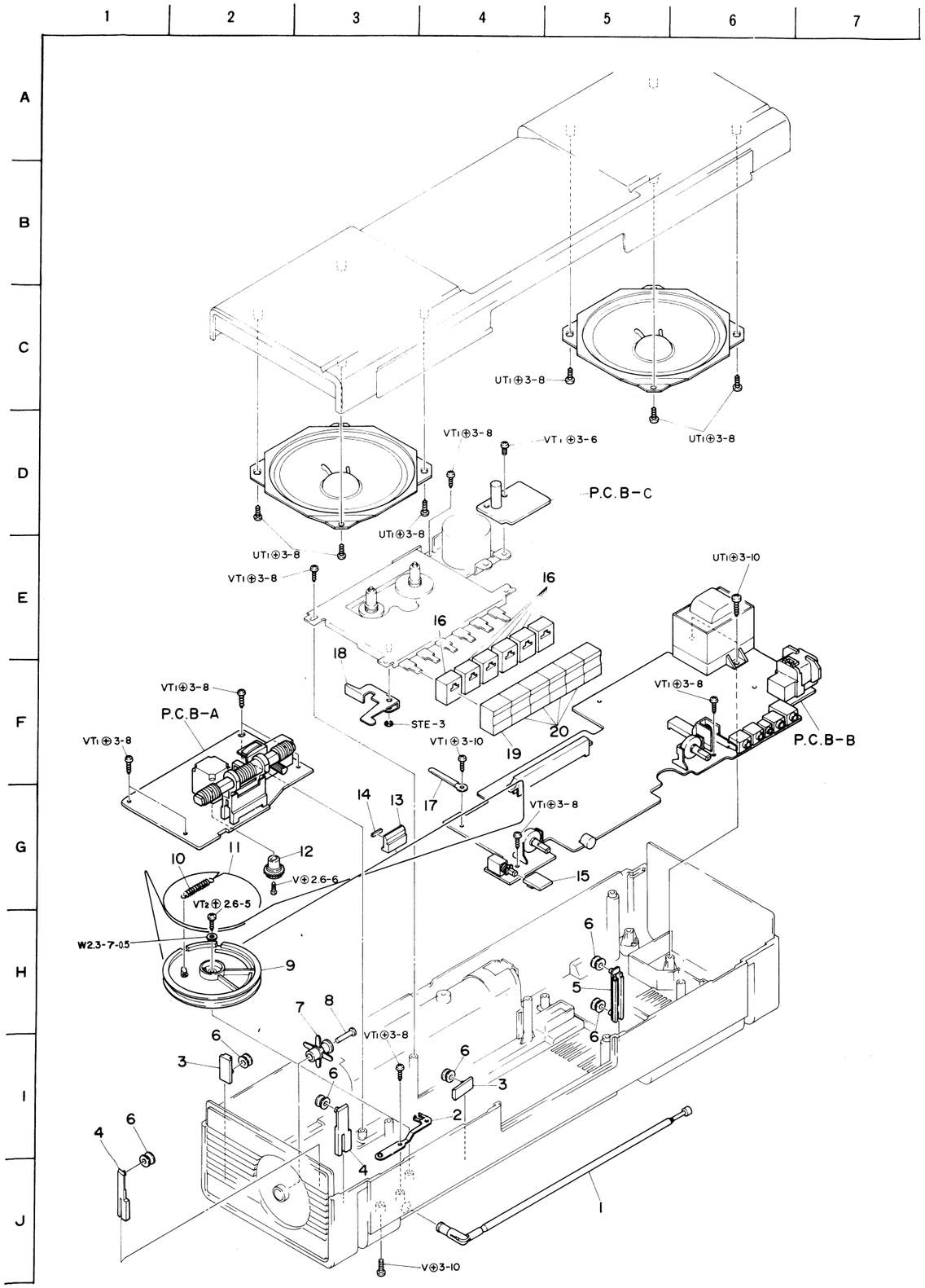


| Ref. No. | Part No. | Part No. Changed to | Description | Common Model | Q'ty | Remark |
|---|---|---|---|---|---|---|
| 1-30 | 81-518-228-01 | | Cushion. Battery lid | CS-W330 | 1 | ★★★ |
| 1-31 | 81-527-005-01 | | Lid. Battery [S] (H. HJ. C. E. K. G models only) | ※ | 1 | |
| | 81-527-050-01 | | Lid. Battery [R] (H. HJ. E. models only) | ※ | 1 | |
| | 81-527-061-01 | | Lid. Battery [B] (H. HJ. HU. U. E. Z. FJ models only) | ※ | 1 | |
| | 81-527-066-01 | | Lid. Battery [WR] (K. Z models only) | ※ | 1 | |
| 1-32 | 81-527-217-11 | | Shaft. Handle | ※ | 2 | ★★★ |
| 1-33 | 81-527-040-01 | | Knob. Selector | ※ | 1 | |
| 1-34 | 81-527-056-01 | | Plate AC (C model only) | ※ | 1 | ★★★ |
| | 81-527-042-01 | | Plate AC (K. G models only) | ※ | 1 | ★★★ |
| | 81-527-029-01 | | Plate AC (U model only) | ※ | 1 | ★★★ |

| Part No. | Description |
|---|---|
| 87-261-032-21 | V+2-3 |
| 87-261-072-21 | V+2.6-5 |
| 87-261-073-21 | V+2.6-6 |
| 87-261-096-21 | V+3-10 |
| 87-351-035-21 | $VT_1$+2-6 |
| 87-351-073-21 | $VT_1$+2.6-6 |
| 87-351-094-21 | $VT_1$+3-6 |
| 87-351-095-21 | $VT_1$+3-8 |
| 87-356-096-01 | $VT_1$+3-10 |
| 87-351-100-21 | $VT_1$+3-16 |
| 87-352-071-21 | $VT_2$+2.6-4 |
| 87-352-072-01 | $VT_2$+2.6-5 |
| 87-321-095-21 | $QT_1$+3-8 |
| 87-324-074-21 | $QT_2$+2.6-8 |
| 87-251-034-21 | U+2-5 |

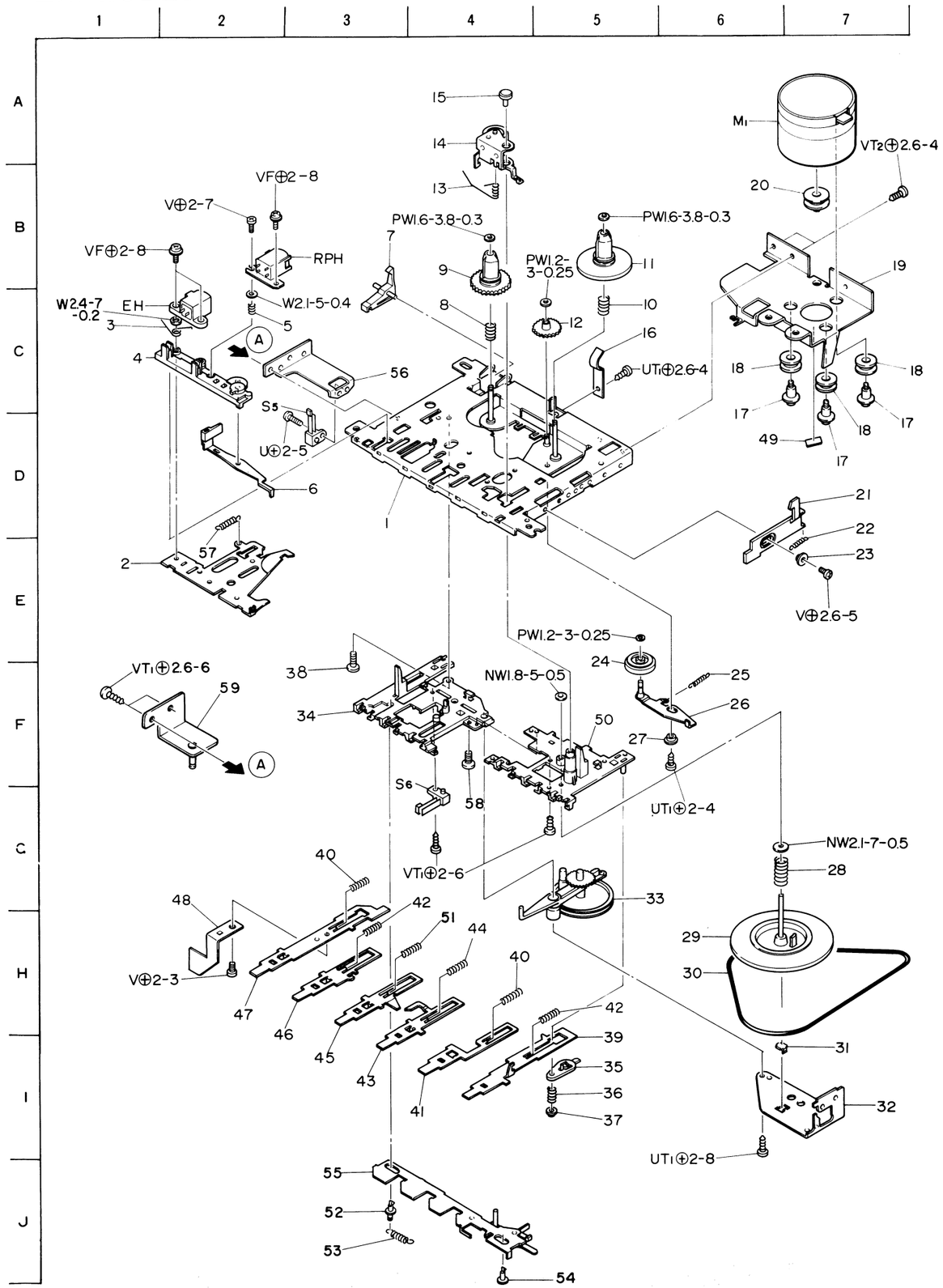
| Part No. | Description |
|---|---|
| 87-341-033-21 | $UT_1$+2-4 |
| 87-341-036-21 | $UT_1$+2-8 |
| 87-341-071-21 | $UT_1$+2.6-4 |
| 87-341-095-21 | $UT_1$+3-8 |
| 87-391-096-21 | $UT_1$+3-10 |
| 87-511-096-21 | $VFT_1$+3-10 |
| 87-441-009-01 | STE-3 |
| 87-067-138-01 | W2.1-5-0.4 |
| 87-410-308-01 | W2.3-7-0.5 |
| 87-081-994-01 | PW1.2-3-0.25 |
| 87-067-100-01 | PW1.6-3.8-0.3 |
| 87-067-101-01 | NW1.8-5-0.25 |
| 87-067-102-01 | NW2.1-7-0.5 |

# EXPLODED VIEW-2




| Ref. No. | Part No. | Part No. Changed to | Description | Common Model | Q'ty | Remark |
|---|---|---|---|---|---|---|
| 2-1 | 87-043-074-01 | | Whip antenna | | 1 | |
| 2-2 | 81-527-208-01 | | Holder antenna | ※ | 1 | ★★★ |
| 2-3 | 81-527-212-01 | | Holder B, Roller | ※ | 2 | |
| 2-4 | 81-527-213-01 | | Holder C, Roller | ※ | 2 | |
| 2-5 | 81-527-211-01 | | Holder A, Roller | ※ | 1 | |
| 2-6 | 82-592-597-11 | | Roller | | 6 | |
| 2-7 | 81-518-209-01 | | Shaft, Tuning | CS-W330 | 1 | |
| 2-8 | 81-518-229-01 | | Stopper knob | CS-W330 | 1 | |
| 2-9 | 81-511-202-21 | | Drum, Tuning | | 1 | ★★★ |
| 2-10 | 82-541-291-01 | | E-spring, Dial | | 1 | |
| 2-11 | 87-096-045-01 | | String, Dial | | 1 | |
| 2-12 | 81-511-203-21 | | Joint, Drum | | 1 | |
| 2-13 | 81-527-011-21 | | Pointer, Tuning | ※ | 1 | |
| 2-14 | 81-527-599-01 | | Cushion 14-3-3 | ※ | 1 | ★★★ |
| 2-15 | 81-527-025-11 | | Push-button, FM | ※ | 1 | |
| 2-16 | 81-518-222-01 | | Push-button, INNER | CS-W330 | 6 | |
| 2-17 | 81-038-056-01 | | Wire binder | | 1 | ★★★ |
| 2-18 | 81-527-209-11 | | Lever, REC | ※ | 1 | ★★★ |
| 2-19 | 81-527-020-01 | | Push-button, REC | ※ | 1 | |
| 2-20 | 81-527-015-01 | | Push-button | ※ | 5 | |

# EXPLODED VIEW-3




| Ref. No. | Part No. | Part No. Changed to | Description | Common Model | Q'ty | Remark |
|---|---|---|---|---|---|---|
| 3-1 | 81-504-200-01 | | Chassis ass'y | CS-200 | 1 | ★★★ |
| 3-2 | 81-504-203-01 | | Panel, Head | CS-200 | 1 | ★★★ |
| 3-3 | 81-518-302-01 | | RC spring | CS-W330 | 1 | |
| 3-4 | 81-504-204-01 | | Head base | CS-200 | 1 | |
| 3-5 | 81-504-206-01 | | C-spring, Azimuth | CS-200 | 1 | |
| 3-6 | 81-518-262-01 | | Detection plate ass'y | CS-W330 | 1 | |
| 3-7 | 81-504-202-01 | | REC blocking lever | CS-200 | 1 | |
| 3-8 | 81-504-224-01 | | C-spring, Back tension | CS-200 | 1 | |
| 3-9 | 81-504-223-01 | | Supply reel platform ass'y | CS-200 | 1 | |
| 3-10 | 81-504-222-01 | | C-spring, Back tension | CS-200 | 1 | |
| 3-11 | 81-518-267-01 | | Take-up reel platform ass'y | CS-W330 | 1 | |
| 3-12 | 81-504-216-01 | | Gear, FF | CS-200 | 1 | |
| 3-13 | 81-504-209-01 | | T-spring, Pinch roller | CS-200 | 1 | |
| 3-14 | 81-504-208-01 | | Pinch roller ass'y | CS-200 | 1 | |
| 3-15 | 81-504-210-01 | | Arm stopper, Pinch roller | CS-200 | 1 | |
| 3-16 | 81-504-251-01 | | P-spring, Pack holder | CS-200 | 1 | |
| 3-17 | 81-504-229-01 | | Motor screw | CS-200 | 3 | |
| 3-18 | 81-504-228-01 | | Rubber cushion | CS-200 | 3 | |
| 3-19 | 81-527-202-01 | | Holder, Motor | ※ | 1 | ★★★ |
| 3-20 | 81-527-203-01 | | Pulley, Motor | ※ | 1 | |
| 3-21 | 81-518-270-01 | | Eject slide lever | CS-W330 | 1 | |
| 3-22 | 81-504-231-01 | | E-spring, Eject lever | CS-200 | 1 | |
| 3-23 | 81-504-232-01 | | Eject collar | CS-200 | 1 | ★★★ |
| 3-24 | 81-504-213-01 | | Roller T ass'y | CS-200 | 1 | |
| 3-25 | 81-504-214-01 | | E-spring, Roller T arm | CS-200 | 1 | |
| 3-26 | 81-504-212-01 | | Roller T arm ass'y | CS-200 | 1 | |
| 3-27 | 81-504-215-01 | | Collar, Roller T arm | CS-200 | 1 | ★★★ |
| 3-28 | 81-504-220-01 | | C-spring, Flywheel | CS-200 | 1 | |
| 3-29 | 81-504-217-01 | | Flywheel ass'y | CS-200 | 1 | |
| 3-30 | 81-518-268-01 | | Belt, Main | CS-W330 | 1 | |
| 3-31 | 81-504-219-01 | | Touch plate, Flywheel | CS-200 | 1 | |
| 3-32 | 81-518-265-01 | | Bearing plate, Flywheel | CS-W330 | 1 | ★★★ |
| 3-33 | 81-518-264-01 | | RF pulley arm ass'y | CS-W330 | 1 | |
| 3-34 | 81-518-271-01 | | Base R, Button | CS-W330 | 1 | ★★★ |
| 3-35 | 81-518-275-01 | | Lever, PAUSE | CS-W330 | 1 | |
| 3-36 | 81-504-249-01 | | C-spring, PAUSE lever | CS-200 | 1 | |
| 3-37 | 81-518-276-01 | | Stopper, PAUSE lever | CS-W330 | 1 | ★★★ |
| 3-38 | 81-518-288-01 | | Collar screw Z | CS-W330 | 1 | ★★★ |
| 3-39 | 81-504-234-01 | | Lever, PAUSE button | CS-200 | 1 | ★★★ |
| 3-40 | 81-504-240-01 | | C-spring, Button lever | CS-200 | 2 | ★★★ |
| 3-41 | 81-504-235-01 | | Lever, STOP button | CS-200 | 1 | ★★★ |
| 3-42 | 81-504-242-01 | | C-spring, Button lever | CS-200 | 2 | |
| 3-43 | 81-504-236-01 | | Lever, FF button | CS-200 | 1 | ★★★ |
| 3-44 | 81-504-241-01 | | C-spring, Button lever | CS-200 | 1 | |
| 3-45 | 81-504-237-01 | | Lever, RWD button | CS-200 | 1 | ★★★ |
| 3-46 | 81-504-238-01 | | Lever, PLAY button | CS-200 | 1 | ★★★ |
| 3-47 | 81-504-239-01 | | Lever, REC button | CS-200 | 1 | ★★★ |
| 3-48 | 81-527-210-01 | | P-spring, REC | ※ | 1 | |
| 3-49 | 81-518-269-01 | | Felt, Anti-vibration | CS-W330 | 1 | ★★★ |
| 3-50 | 81-518-272-01 | | Base L, Button | CS-W330 | 1 | ★★★ |
| 3-51 | 81-518-296-01 | | Spring, Button lever | CS-W330 | 1 | |
| 3-52 | 81-504-245-01 | | Shaft B, Actuating plate | CS-200 | 1 | |
| 3-53 | 81-518-274-01 | | E-spring, Actuating plate | CS-W330 | 1 | |
| 3-54 | 81-504-246-01 | | Shaft, Actuating plate | CS-200 | 1 | |
| 3-55 | 81-518-273-01 | | Push-button actuating plate ass'y | CS-W330 | 1 | |
| 3-56 | 81-518-280-01 | | Bracket, MS | CS-W330 | 1 | |
| 3-57 | 81-518-263-01 | | E-spring, Head panel | CS-W330 | 1 | |
| 3-58 | 81-518-301-01 | | Collar screw | CS-W330 | 1 | ★★★ |
| 3-59 | 81-527-204-01 | | REC holder ass'y | ※ | 1 | ★★★ |

# ■ACCESSORIES/PACKAGE LIST

| Ref. No. | Part No. | Part No. Changed to | Description | Common Model | Q'ty | Remark |
|---|---|---|---|---|---|---|
| 1 a | 81-527-855-01 | | Box, Gift (H, HB, HR, HUB, C, UB, E, EB, ER, K, KWR, G, ZB, ZWR models only) | ※ | 1 | ★★★ |
| b | 81-527-858-01 | | Box, Gift (HJ, HJB, HJR, FJB models only) | ※ | 1 | ★★★ |
| 2 | 81-527-852-01 | | Poly-form L | ※ | 1 | ★★★ |
| 3 | 81-527-853-01 | | Poly-form R | ※ | 1 | ★★★ |
| 4 | 82-589-999-01 | | Poly-bag | | 1 | ★★★ |
| 5 | 87-051-171-11 | | Poly-bag | | 1 | ★★★ |
| 6 a | 81-527-904-11 | | Booklet instruction (H, HB, HR, HJ, HJB, HJR, HUB, C, UB, G, FJB models only) | ※ | 1 | |
| b | 81-527-905-01 | | Booklet instruction (E, EB, ER, K, KWR, ZB, ZWR models only) | ※ | 1 | |
| 7 | 87-056-050-21 | | Safety instruction (UB model only) | | 1 | |
| 8 | 87-056-013-11 | | Card, Guarantee (C model only) | | 1 | |
| 9 | 87-056-045-01 | | Card, Guarantee (HUB, UB models only) | | 1 | |
| 10 | 87-056-059-01 | | Card, Guarantee (G model only) | | 1 | |
| 11 | 87-056-009-51 | | List, Distributors (H, HB, HR, HJ, HJB, HJR, C, E, EB, ER, K, KWR, G, ZB, ZWR, FJB models only) | | 1 | |
| 12 | 87-056-084-01 | | Limited, Warranty (HUB, UB models only) | | 1 | |
| 13 | 87-056-665-01 | | Colour label, WR (KWR, ZWR models only) | | 1 | |
| 14 | 87-056-008-11 | | Label, AC power cord (K, KWR models only) | | 1 | |
| 15 | 87-056-016-01 | | Tag, Voltage (K, KWR models only) | | 1 | |
| 16 a | 82-593-968-01 | | AC power cord (H, HB, HR, HJ, HJB, HJR, HUB, FJB models only) | | 1 | ★★★ |
| b | 87-034-928-01 | | AC power cord (C, UB models only) | | 1 | ★★★ |
| c | 87-034-989-01 | | AC power cord (E, EB, ER, ZB, ZWR models only) | | 1 | ★★★ |
| d | 81-504-968-01 | | AC power cord (K, KWR models only) | | 1 | ★★★ |
| e | 81-504-967-01 | | AC power cord (G model only) | | 1 | ★★★ |
| 17 | 87-049-137-01 | | Siemens plug (H, HB, HR, HJ, HJB, HJR, HUB, FJB models only) | | 1 | |



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